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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,009	10/29/2001	Huanzhao Zeng	10012661-1	7477

7590

12/20/2005

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EXAMINER

MENBERU, BENIYAM

ART UNIT

PAPER NUMBER

2626

DATE MAILED: 12/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/004,009

Applicant(s)

ZENG ET AL.

Examiner

Beniyam Menberu

Art Unit

2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 and 39-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 47-52 is/are allowed.
- 6) ☒ Claim(s) 1-37 and 39-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

Response to Arguments

1. Applicant's arguments, see Remarks pages 14-21, filed September 16, 2005, with respect to the rejection(s) of claim(s) 1 and 19 under U.S. Patent No. 5872895 to Zandee et al, claims 6 and 24 under U.S. Patent No. 5872895 to Zandee et al in view of U.S. Patent 6529291 to Schweid et al, claims 37 and 42 under U.S. Patent Application Publication No. US 2002/0027603 A1 to Kuwata et al have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of U.S. Patent No. 6744534 to Balasubramanian et al for claims 1, 6, 19, and 24 and U.S. Patent No. 6778300 to Kohler for claims 37 and 42.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 3, 5, 6, 7, 8, 10, 11, 12, 19, 20, 21, 23, 24, 25, 26, 28, 29, and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6744534 to Balasubramanian et al.

Regarding claims 1 and 19, Balasubramanian et al disclose a method/program (column 12, lines 33-45) of mapping a color in a color image produced by an image device from a presentation color space to a destination color space, the method comprising the steps of:

receiving the color from the image device (column 6, lines 57-65);

determining whether the received color is to be preserved (column 7, lines 8-27);

converting the received color from the presentation color space to the destination color space using a default profile if it is determined that the received color is to be preserved (column 7, lines 13-27; column 2, lines 46-57; The identity transform represents the default profile); and

converting the received color from the presentation color space to the destination color space using a device-specific profile absent a determination that the received color is to be preserved (column 7, lines 28-39).

Regarding claims 6 and 24, Balasubramanian et al disclose a method/program of mapping an initial-formatted color produced by an image device in a presentation color space to a destination color space comprising the steps of:

receiving the initial-formatted color from the image device (column 6, lines 57-65);

converting the initial-formatted color from the presentation color space to the destination color space using a device-specific profile to produce a device-formatted color (column 11, lines 55-67);

converting the initial-formatted color from the presentation color space to the destination color space using a default profile to produce a default-formatted color,

Art Unit: 2626

the default profile being adapted to preserve primary colors of the presentation color space (column 12, lines 1-8); and

producing a resultant color in the destination color space by weighted combination of the device-formatted color with the default-formatted color (column 12, lines 9-28; column 11, lines 11-19).

Regarding claims 2 and 20, Balasubramanian et al teach all the limitations of claims 1 and 19 respectively. Further Balasubramanian et al disclose the method of claim 1, wherein the image device is a monitor (column 2, lines 25-30)

Regarding claims 3 and 21, Balasubramanian et al teach all the limitations of claims 1 and 19 respectively. Further Balasubramanian et al disclose the method of claim 1, wherein the presentation color space is RGB color space (column 1, lines 65-67; column 2, lines 1-5).

Regarding claims 5 and 23, Balasubramanian et al teach all the limitations of claims 1 and 19 respectively. Further Balasubramanian et al disclose the method and program of claim 1, which further comprises receiving the device-specific profile from the image device (column 2, lines 46-57).

Regarding claims 7 and 25, Balasubramanian et al teach all the limitations of claims 6 and 24 respectively. Further Balasubramanian et al disclose the method of claim 6, wherein the image device is a monitor (column 2, lines 25-30).

Regarding claims 8 and 26, Balasubramanian et al teach all the limitations of claims 6 and 24 respectively. Further Balasubramanian et al disclose the method of

Art Unit: 2626

claim 6, wherein the presentation color space is RGB color space (column 1, lines 65-67; column 2, lines 1-5).

Regarding claims 10 and 28, Balasubramanian et al teach all the limitations of claims 6 and 24 respectively. Further Balasubramanian et al disclose the method of claim 6, which further comprises receiving the device-specific profile from the image device (column 2, lines 46-57).

Regarding claims 11 and 29, Balasubramanian et al teach all the limitations of claims 6 and 24 respectively. Further Balasubramanian et al disclose the method of claim 6, wherein weighted combination of the device-formatted color with the default-formatted color includes weighting the device-formatted color relative to the default-formatted color (column 12, lines 9-28; column 11, lines 11-19).

Regarding claims 12 and 30, Balasubramanian et al teach all the limitations of claims 6 and 24 respectively. Further Balasubramanian et al disclose the method of claim 6, wherein weighted combination of the device-formatted color with the default-formatted color involves weighting the device-formatted color and the default-formatted color based on proximity to a to-be-preserved primary color (column 7, lines 28-39).

4. Claims 37, 39, 41, 42, 43, 44, and 46 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6778300 to Kohler.

Regarding claims 37 and 42, Kohler discloses a method/program (column 5, lines 44-53) of mapping a source image from a presentation color space to a printing color space comprising the steps of:

Art Unit: 2626

receiving the source image, the source image including colors defined in the presentation color space (column 11, lines 23-25);

converting the source image from the presentation color space to an intermediate color space in accordance with a conversion function which accommodates preservation of one or more colors to produce a color-preserved image (column 11, lines 46-50; column 7, lines 50-55);

converting the color-preserved image back from the intermediate color space to the presentation color space to produce a color-preserved image in the presentation color space (column 11, lines 59-64); and

converting the color-preserved image from the presentation color space to the printing color space (column 12, lines 24-32).

Regarding claim 43, Kohler teaches all the limitations of claim 42 respectively. Further Kohler disclose the method of claim 37, wherein the image device is a monitor (column 7, lines 41-48).

Regarding claims 39 and 44, Kohler teach all the limitations of claims 37 and 42 respectively. Further Kohler disclose the method of claim 37, wherein the presentation color space is RGB color space (column 7, lines 46-48).

Regarding claims 41 and 46, Kohler teach all the limitations of claims 37 and 42 respectively. Further Kohler disclose the method of claim 37, wherein the printing color space is CMYK color space (column 12, lines 25-31).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 13-15 and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6744534 to Balasubramanian et al in view of U.S. Patent No. 6337692 to Rai et al.

Regarding claims 13 and 31, Balasubramanian et al teaches all the limitations of claims 12 and 30 respectively. However Balasubramanian et al does not disclose wherein proximity to the to-be-preserved primary color is determined based on hue angle of the initial-formatted color.

Rai et al discloses proximity to the to-be-preserved primary color is determined based on hue angle of the initial-formatted color (column 17, lines 2-14).

Balasubramanian et al and Rai et al are combinable because they are in the similar problem area of color printing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the hue angle/primary color relationship taught by Rai et al with the color rendering system of Balasubramanian et al to implement hue angle based primary color determination for the purpose of primary color preservation.

The motivation to combine the reference is clear because Rai et al teaches the relationship between hue of a color and a hue angle (column 17, lines 2-5).

Regarding claims 14 and 32, Balasubramanian et al in view of Rai et al teach all the limitations of claims 13 and 31 respectively. Further Rai et al disclose the method of claim 13, wherein the hue angle is related to a weighting factor by a look-up table (column 19, lines 1-10; Fig. 6A).

Regarding claims 15 and 33, Balasubramanian et al in view of Rai et al teach all the limitations of claims 13 and 31. Further Rai et al disclose the method of claim 13, wherein hue angle is related to a weighting factor by a mathematical function (Fig. 6A; column 18, lines 17-24).

7. Claims 4, 9, 16, 17, 18, 22, 27, 34, 35, 36, 40, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6744534 to Balasubramanian et al in view of U.S. Patent No. 6226011 to Sakuyama et al.

Regarding claims 4, 9, 22, and 27, Balasubramanian et al teaches all the limitations of claims 1, 6, 19, and 24 respectively. However Balasubramanian et al does not disclose the method of claim 1, wherein the destination color space is CIE XYZ color space.

Sakuyama et al disclose the method of claim 1, wherein the destination color space is CIE XYZ color space (column 12, lines 1-12).

Balasubramanian et al and Sakuyama et al are combinable because they are in the similar problem area of color printing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the XYZ color space conversion of Sakuyama et al with the system of Balasubramanian et al to implement XYZ based color printing.

The motivation to combine the reference is clear because Sakuyama et al disclose that color uniformity can be achieved using intermediate color space such as XYZ space (column 12, lines 13-15).

Regarding claims 16 and 34, Balasubramanian et al teach all the limitations of claims 6 and 24 respectively. Further Balasubramanian et al in view of Sakuyama et al disclose the method of claim 6, wherein weighted combination of the device-formatted color with the default-formatted color is accomplished in accordance with the equation:

$$c * [X, Y, Z]_{\text{DEVICE}} + (1-c) * [X, Y, Z]_{\text{DEFAULT}} \Rightarrow [X, Y, Z]_{\text{RESULTANT}}$$

wherein c is a weighting factor, and wherein $[X, Y, Z]_{\text{DEVICE}}$ is the device-formatted color, wherein $[X, Y, Z]_{\text{DEFAULT}}$ is the default-formatted color, and wherein $[X, Y, Z]_{\text{RESULTANT}}$ is the resultant color (Balasubramanian et al: column 8, lines 43-46; Sakuyama et al: column 12, lines 1-12).

Regarding claims 17 and 35, Balasubramanian et al in view of Sakuyama et al teach all the limitations of claims 16 and 34 respectively. Further Balasubramanian et al disclose the method of claim 16, wherein c approaches 0 as the initial-formatted color approaches a to-be-preserved primary color (column 8, lines 45-50).

Regarding claims 18 and 36, Balasubramanian et al in view of Sakuyama et al teach all the limitations of claims 16 and 34. Further Balasubramanian et al disclose the

Art Unit: 2626

method of claim 16, wherein combination of c and (1-c) produce unity (C added to (1-C) is equal to one).

Regarding claims 40 and 45, Kohler teach all the limitations of claims 37 and 42 respectively. Further Sakuyama et al disclose the method of claim 37, wherein the intermediate color space is CIE XYZ color space (column 12, lines 1-12).

Allowable Subject Matter

8. Claims 47-52 are allowed.

9. The following is an examiner's statement of reasons for allowance:

In addition to the teachings of the claim 47 as a whole, the closest prior art of record failed to teach or suggest,

"a print processor configured to receive the initial-formatted color image from the image device, to convert the initial-formatted color image from the presentation color space to a destination color space using a device-specific profile to produce a device-formatted color image, to convert the initial-formatted color image from the color space using a default profile to presentation color space to the destination produce a default-formatted color image the default profile being adapted to preserve primary colors of the presentation color space, to produce a resultant color image in the destination color space with primary colors derived using the default profile and non-primary colors derived using the device-specific profile by weighted combination of the device-formatted color image with the default-formatted color image, to convert the resultant color image from the destination color

Art Unit: 2626

space to the presentation color space to produce a color-preserved color image in the presentation color space, and to convert the color-preserved color image from the presentation color space to a printing color space". Therefore, claims 48-52 are allowable for depending on claim 47.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Other Prior Art Cited

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 5539540 to Spaulding et al disclose method/apparatus for color transformation.

U.S. Patent No. 6967746 to Walker et al disclose device color profile combination.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Beniyam Menberu whose telephone number is (571) 272-7465. The examiner can normally be reached on 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly Williams can be reached on (571) 272-7471. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service office whose telephone number is (571) 272-2600. The group receptionist number for TC 2600 is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

Art Unit: 2626

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Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner

Beniyam Menberu

BM

12/14/2005

KA Williams

**KIMBERLY WILLIAMS
SUPERVISORY PATENT EXAMINER**